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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)			Application Number	10/062,044	
			Filing Date	1/31/02	
			First Named Inventor	Steven Teig, et al.	
			Group Art Unit	2825	
			Examiner Name	Naum B. Levin	
Sheet	1	of	1	Attorney Docket Number	SPLX.P0093

RELATED U.S. PATENT APPLICATIONS					
Examiner Initials	Cite No.	U.S. Patent Application Serial Number	Name of Patentee or Applicant of Cited Document	Date of Filing MM/DD/YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
NL	1.	10/062,017	Steven Teig & Asmus Hetzel	01-31-02	
	2.	10/061,459	Steven Teig & Asmus Hetzel	01-31-02	
	3.	10/062,014	Steven Teig & Asmus Hetzel	01-31-02	
	4.	10/066,264	Steven Teig & Asmus Hetzel	01-31-02	
	5.	10/066,188	Steven Teig & Asmus Hetzel	01-31-02	
	6.	10/062,992	Steven Teig & Asmus Hetzel	01-31-02	
	7.	10/061,474	Steven Teig & Asmus Hetzel	01-31-02	
	8.	10/061,719	Steven Teig & Asmus Hetzel	01-31-02	
	9.	10/066,456	Steven Teig & Asmus Hetzel	01-31-02	
	10.	10/062,993	Steven Teig & Asmus Hetzel	01-31-02	
NL	11.	10/062,047	Steven Teig & Asmus Hetzel	01-31-02	

Examiner Signature	<i>Naum</i>	Date Considered	09/29/04
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¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WFO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 10 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

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			Filing Date	1/31/02	
			First Named Inventor	Steven Teig, et al.	
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			Examiner Name	Naum B. Levin	
Sheet	2	of	2	Attorney Docket Number	SPLX.P0093

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume/issue number(s), publisher, city and/or country where published.	Is
NL	12.	D. Jongeneel, R. Otten, Y. Watonabe and R. K. Brayton, Area and Search Space Control for Technology Mapping, 37 th Design Automation Conference, 86-91, 2000.	
	13.	Henrik Reif Andersen, An Introduction to Binary Decision Diagrams, October 1997 (minor revisions April 1998), 36 pp.	
	14.	Jerry Burch and David Long, Efficient Boolean Function Matching, Proc. ICCAD 1992, 408-411.	
	15.	John Fishburn, A Depth-Decreasing Heuristic for Combinational Logic; or How to Convert Ripple-Carry Adder into a Carry-Lookahead Adder or Anything In-Between. Proceedings of the 27 th Design Automation Conference, 361-364, 1990.	
	16.	Kamal Chaudhary and Massoud Pedram, A Near Optimal Algorithm for Technology Mapping Minimizing Area under Delay Constraints, Proceedings of the 29 th Design Automation Conference, 492-498, 1992.	
	17.	Kurt Keutzer, DAGON: Technology Binding and Local Optimization by DAG Matching, Proceedings of the 24 th Design Automation Conference, 341-347, 1987.	
	18.	Randal Bryant, Symbolic Boolean Manipulation with Ordered Binary Decision Diagrams, CMU CS Tech Report CMU-CS-92-160.	
	19.	Uwe Hinsberger and Reiner Kolla, Boolean Matching for Large Libraries, Proceedings of the 35 th Design Automation Conference, 206-211, June 1998.	
	20.	Yuji Kukimoto, Robert K. Brayton, and Prashant Sawkar, Delay-Optimal Technology Mapping by DAG Covering, Dept. of Electrical Engineering and Computer Science, University of California, Berkeley, Strategic CAD Laboratories, Intel Corp., October 1997.	
	NL	21.	Zbigniew J. Czech, et al., An Optimal Algorithm for Generating Minimal Perfect Hashing Functions, Information Processing Letters, 43(5); 257-264, October 1992

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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	10/062,044
		Filing Date	1/31/02
		First Named Inventor	Steven Teig, et al.
		Group Art Unit	2825
		Examiner Name	Naum B Levin
Sheet 1 of 1	Attorney Docket Number	SPLX.P0093	

U.S. PATENT DOCUMENTS					
Examiner's Initials	Cite No.	U.S. Patent Document Number Kind Code ² (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant; Passages or Relevant Figures Appear
NL	1.	6,134,705	10-17-2000	Pedersen et al	
↑	2.	6,102,964	08-15-2000	Tse et al	
	3.	6,473,884	10-29-2002	Ganai et al	
	4.	6,086,626	07-11-2000	Jain et al	
	5.	6,336,208	01-01-2002	Mohan et al	
	6.	5,752,000	05-12-1998	McGeer et al	
	7.	6,490,717	12-03-2002	Pedersen et al	
	8.	2001/013113	08-09-2001	Matsunaga	
	9.	6,298,472	10-02-2001	Phillips et al	
	10.	5,526,276	06-11-1996	Cox et al	
↓	11.	5,311,442	05-10-1994	Fukushima	
NL	12.	6,546,539	04-08-2003	Lu et al	

Examiner Signature	Naum B Levin	Date Considered	09/29/04
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Substitute for form 1449A/PTO		Application Number	10/062,044
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>		Filing Date	1/31/02
		First Named Inventor	Steven Teig, et al.
		Group Art Unit	2825
		Examiner Name	N. Levin
		Attorney Docket Number	SPLX.PU093
Sheet	1	of	3

U.S. PATENT DOCUMENTS						
Examiner's Initials	Cite No.	U.S. Patent Document Number Kind Code ² (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	
NL A	1.	2002/0157063	A1	10-24-2002	Besson	
	2.	2002/0178432	A1	11-28-2002	Kim et al.	
	3.	2003/0145288	A1	07-31-2003	Wang et al.	
	4.	4,703,435		10-27-1987	Darringer et al.	
	5.	5,003,487		03-26-1991	Drumm et al.	
	6.	5,521,835		05-28-1996	Trimberger	
	7.	5,537,330		07-16-1996	Damiano et al.	
	8.	5,610,829		03-11-1997	Trimberger	
	9.	5,892,678		04-06-1999	Tokunoh et al.	
	10.	5,903,466		05-11-1999	Beausang et al.	
	11.	5,991,524		11-23-1999	Belkhale et al.	
	12.	6,035,107		03-07-2000	Kuehlman et al.	
	13.	6,080,204		06-27-2000	Mendel	
	14.	6,216,252	B1	04-10-2001	Dangelo et al.	
	15.	6,311,317	B1	10-30-2001	Khoche et al.	
	16.	6,334,205		12-25-2001	Iyer et al.	
	17.	6,389,586	B1	05-14-2002	McElvain	
	18.	6,397,170	B1	05-28-2002	Dean et al.	
	19.	6,421,818	B1	07-16-2002	Dupenloup et al.	
	20.	6,446,240	B1	09-03-2002	Iyer et al.	
NL	21.	6,453,447	B1	09-17-2002	Gardner et al.	

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				Group Art Unit	2825
				Examiner Name	N. Levin
Sheet	2	of	3	Attorney Docket Number	SPLX.P0093

U.S. PATENT DOCUMENTS						
NL ↑	22.	6,470,478	B1	10-22-2002	Bargh et al.	
	23.	6,470,486	B1	10-22-2002	Knapp	
	24.	6,496,972	B1	12-17-2002	Segal	
	25.	6,519,609	B1	02-11-2003	Touzel	
	26.	6,519,754	B1	02-11-2003	McElvain et al.	
	27.	6,523,156	B2	02-18-2003	Cirit	
	28.	6,539,536	B1	03-25-2003	Singh et al.	
	29.	6,543,037	B1	04-01-2003	Limqueco et al.	
	30.	6,546,541	B1	04-08-2003	Petranovic et al.	
	31.	6,574,779	B2	06-03-2003	Allen et al.	
NL ↓	32.	6,618,835	B1	09-09-2003	Garlapati et al.	

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NON PATENT LITERATURE DOCUMENTS			
Examiner's initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
NL	33.	NN/8055443, "Automatic Remap", IBM Technical Disclosure Bulletin, Vol. 20, No. 12, May 1978, pp. 5443-5445 (5 pages).	
	34.	NN9411291, "Design of Portable Library using Parameterized Cells", IBM Technical Disclosure Bulletin, Vol. 37, No. 11, pp. 291-292 (4 pages).	
	35.	Markovic et al., "FPGA to ASIC Conversion Design Methodology with the Support for Fast Retargeting to Different CMOS Implementation Technologies", Proceedings of 2002 22 nd International Conference on Microelectronics, Vol. 2, 14 May 2000, pp. 703-706.	
	36.	Ruiz et al., "Design and Prototyping of DSP Custom Circuits Based on a Library of Arithmetic Components", Vol. 1, 9 November 1997, pp. 191-196.	
NL	37.	Tamiya, Y., "Delay Estimation for Technology Independent Synthesis", 1997 Proceedings of the ASP-DAC '97, Asia and South Pacific Design Automation Conference, 28 January 1997, pp. 31-36.	
	38.	Yi, J. H. et al., Technology Mapping for Storage Elements Based on BDD matching, Proceedings of the 40 th Midwest Symposium on Circuits and Systems, pp. 1099-1102, vol.2, August 1997.	

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